REMARKS

Claims 1, 2, 5 and 9-11 have been examined. Claims 5 and 9-11 have been rejected under 35 U.S.C. § 102(b), and claims 1 and 2 have been rejected under 35 U.S.C. § 103(a).

I. Preliminary Matters

The Examiner has objected to the specification as not disclosing the recited feature, "wherein an aperture size of said through hole is smaller than a width of said signal line." Although evident in Figs. 1 and 2, the Examiner has requested that the Applicant provide a description in the specification. Accordingly, Applicant has amended the specification. Since such feature is already adequately disclosed by Figs. 1 and 2, Applicant submits that such amendment does not constitute new matter.

II. Rejection under 35 U.S.C. § 102(b) over U.S. Patent No. 3,771,075 to Phelan ("Phelan")

The Examiner has rejected claim 5 as being anticipated by Phelan. However, Applicant submits that claim 5 is patentable over the cited reference. For example, claim 5 recites that at least one through hole is formed in a signal line, as well as in a ground plate. An inner wall of the through hole formed in the signal line is only directly electrically connected to the signal line, and an inner wall of the through hole formed in the ground plate is only directly electrically connected to the ground plate.

The Examiner alleges that both strip conductors 15 of Phelan, shown in Figs. 1 and 2, are con-contiguous, and therefore, form a through hole. However, as set forth in the March 5, 2004 Amendment, such interpretation is contrary to the recitation of the claim, as well as the reference. For example, the only "through hole" disclosed in the reference is slots 14 (Fig. 1). Neither the upper nor lower strip conductors 15 are disclosed as containing a respective through hole. Also, claim 5 does not recite that the through hole is formed through both of the signal lines. Rather, the claimed through hole is formed in only one signal line, i.e. "said" signal line. Therefore, since the Examiner alleges that the through hole is formed by both non-contiguous strip conductors, i.e. through both strip conductors 15, Applicant submits that Phelan fails to disclose the claimed signal line through hole.

Also, on pg. 3 of the current Office Action, the Examiner maintains that the strip conductors 15 are taught as a "single entity". However, the strip conductors 15 are clearly taught as two separate entities. For example, Phelan discloses that Figs. 1 and 2 show each of a pair of microstrip lines 10 and 11, where each microstrip line comprises a substrate 12, a ground plane 13, a narrow strip 15 and a narrow slot 14 provided in the ground plane (col. 2, lines 37-51). Accordingly, the two strips 15 of Figs. 1 and 2 are each part of a separate microstrip line, and thus, are not taught as a "single entity" as maintained by the Examiner.

Applicant also directs the Examiner's attention to col. 3 of Phelan, where the strips 15 are referred to in the plural form (col. 3, lines 7-25). The back-to-back microstrip lines 10 and 11, which each contain a strip 15, are also shown in Figs. 4 and 5.

Further, on pg. 3 of the Office Action, the Examiner has defined the term through hole as being "from one side to the other." Applicant does not concede that such definition is accurate. However, even if Applicant assumes *arguendo* that such definition is proper, Phelan still fails to teach or suggest that either of strips 15 contain a through hole formed from one side of the strip to the other. Rather, both strips 15 are shown as being solid throughout their length.

Based on the foregoing, Applicant submits that Phelan fails to disclose the claimed signal line through hole, and respectfully requests the Examiner to reconsider and withdraw the rejection.

III. Rejections under 35 U.S.C. § 102(b) over U.S. Patent No. 5,723,908 to Fuchida et al. ("Fuchida")

The Examiner has rejected claims 9-11 under 35 U.S.C. § 102(b) as being anticipated by Fuchida. Fuchida is a newly cited reference in the current Office Action.

A. Claim 9

Applicant submits that claim 9 is patentable over the cited reference. For example, claim 9 recites that a plurality of slit holes are formed by forming a signal line of a plurality of thin strips and by connecting the thin strips at respective terminal ends of the thin strips.

The Examiner maintains that Fig. 12B of Fuchida discloses the above features (pg. 5 of Office Action). However, Fig. 12B of Fuchida merely discloses a ground plate, i.e.

power/ground line 2, that has an interleaved structure (col. 9, lines 13-21). Applicant submits that the mere disclosure of the *ground plate 2* fails to teach or suggest the claimed *signal line*, which is formed of a plurality of strips connected at respective terminal ends.

Accordingly, Applicant submits that claim 9 is patentable over the cited reference, and respectfully requests the Examiner to reconsider and withdraw the rejection.

B. Claim 10

Applicant submits that claim 10 is patentable over the cited reference. For example, claim 10 recites that a plurality of through holes are formed in a signal line.

The Examiner maintains that Figs. 4B, 8A and 8B disclose the features of claim 10. However, as shown in the cited figures, the alleged signal lines 10 and 30 are formed of parallel strips (col. 7, lines 1-20). The Examiner appears to maintain that the space between each strip is a through hole. Applicant submits, however, that claim 10 recites that a plurality of through holes are formed in a signal line, not that a plurality of spaces are provided by a signal line separated into multiple components or parts. Thus, the spaces between the "strips" of material do not constitute a through hole.

The Examiner also refers to Fig. 12B as showing the claimed through holes. Fig. 12B, however, depicts power/ground lines 2 (col. 9, lines 13-20). Applicant submits that the ground line 2, as shown, fails to teach or suggest the claimed signal line having through holes.

Based on the foregoing, Applicant submits that claim 10 is patentable over the cited reference, and respectfully requests the Examiner to reconsider and withdraw the rejection.

C. Claim 11

Applicant submits that claim 11 is patentable over the cited reference. For example, claim 11 recites that a plurality of through holes are formed in a ground plate and an inner wall of said plurality of through holes is directly electrically connected to said ground plate, and an aperture size of each of said plurality of through holes is smaller than a width of said signal line.

The Examiner maintains that the multiple signal lines 10 and 30 disclose the claimed signal lines, and the ground lines 20 disclose the claimed ground plate (Figs. 8A and 8B). The Examiner also refers to the power/ground line 2 of Fig. 12B as disclosing the claimed ground plate. However, even if Applicant assumes *arguendo* that either of ground lines 20 or ground line 2 disclose the claimed ground plate, the reference still fails to teach or suggest the features recited in claim 11. For example, Fuchida fails to teach or suggest that an aperture size of each of the through holes of the alleged ground plate is smaller than a width of the alleged signal line.

Accordingly, Applicant submits that claim 11 is patentable over the cited reference and respectfully requests the Examiner to reconsider and withdraw the rejection.

IV. Rejection under 35 U.S.C. § 103(a) over U.S. Patent No. 3,925,740 to Steensma ("Steensma") in view of U.S. Patent No. 5,633,613 to MacDonald ("MacDonald"), U.S. Patent No. 5,479,138 to Kuroda et al. ("Kuroda") and U.S. Patent No. 5,568,107 to Buuck et al. ("Buuck").

The Examiner has rejected claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Steensma, MacDonald, Kuroda and Buuck. Kuroda and Buuck are both newly cited references in the current Office Action.

Applicant submits that claim 1 is patentable over the cited references. For example, claim 1 recites that at least one through hole is formed in a signal line, and an inner wall of the through hole is only directly electrically connected to the signal line.

The Steensma reference discloses tuning structures for microstrip transmission lines (col. 1, lines 7-9). On page 7 of the Office Action, the Examiner maintains that Steensma suggests the feature of claim 1 recited above. In particular, the Examiner maintains that strip conductor 3 and stub strip conductor 8 form the claimed signal line, and gap 7 discloses the claimed through hole (Fig. 2 of Steensma). As set forth in the March 5, 2004 Amendment, Steensma discloses that strip conductor 3 and stub strip conductor 8 are separate conductors which are placed perpendicular to one another (col. 2, lines 7-9). However, as stated above, claim 1 recites a through hole in a signal line, not a signal line separated into multiple components or parts. Therefore, Applicant submits that the gap 7 formed between the perpendicular conductors does not form a through hole in one, i.e. "a" signal line, as required by claim 1.

Claim 1 also recites that another signal line is disposed on an opposite side of the ground plate as the signal line (i.e. the first recited signal line).

The Examiner acknowledges that Steensma fails to teach or suggest such a feature, but contends that MacDonald does. MacDonald discloses microwave phase and amplitude modulation structures and methods (col. 1, lines 7-8). As shown in Fig. 1, MacDonald discloses signal line 32, and another signal line 30 disposed on an opposite side of ground plane 34 (col. 3, lines 23-26). Further, MacDonald discloses that the aperture 26 is formed in the ground plane 34 (Fig. 1; col. 3, lines 27-28). However, there is no teaching or suggestion that an aperture is formed in either of signal lines 30 or 32 (Fig. 1). Therefore, MacDonald fails to cure the deficient teachings (i.e. lack of the claimed through hole) of Steensma.

Claim 1 further recites that an aperture size of the through hole is smaller than a width of the signal line.

The Examiner acknowledges that Steensma and MacDonald fail to disclose the above feature, but contends that the combination of Kuroda and Buuck does. In particular, the Examiner maintains that the open area ratio and expressions taught in Kuroda disclose a determination of a hole size of a through hole in a signal line, while Buuck discloses that a small hole size is beneficial. However, as disclosed in Kuroda, the open area ratio and expressions are taught in regard to openings formed in the grounding conductor wiring G1 and G2 (Fig. 1A; col. 2, lines 39-61; col. 3, line 49-col. 4, line 30). The reference fails to teach or suggest that holes

are also formed in each of the signal lines S1 to S3 (Fig. 1A). Therefore, Kuroda fails to disclose the formation or size determination of through holes in a "signal line."

Further, Buuck merely discloses that a window or opening 90 can be formed in a conductive reference plane 70 (Fig. 3; col. 3, lines 15-22). Assuming *arguendo* that the trace 50, 60 are analogous to a type of signal line, the reference fails to discloses that the trace 50, 60 have a window or opening formed therethrough.

Accordingly, Applicant submits that Kuroda and Buuck fail to cure the deficient teachings of Steensma and MacDonald. Thus, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection.

V. Rejection under 35 U.S.C. § 103(a) over Phelan, Kuroda and Buuck

The Examiner has rejected claim 2 as being unpatentable over Phelan, Kuroda and Buuck. Kuroda and Buuck are newly cited references in the current Office Action.

Applicant submits that claim 2 is patentable over the cited references. For example, claim 2 recites that at least one through hole is formed in a ground plate. Further, an aperture size of the through hole is smaller than a width of a signal line.

The Examiner acknowledges that Phelan fails to disclose the above features, but contends that the combination of Kuroda and Buuck does. However, for similar reasons as set forth above, the combination of Kuroda and Buuck fails to teach or suggest aperture sizes of through

holes with respect to a width of a signal line. In particular, the ratios and expressions of Kuroda disclose an aperture size of a through hole formed in a grounding conductor wiring G1 or G2, but fail to disclose whether such aperture size is smaller than a width of the respective signal lines S1-S3.

Also, assuming *arguendo* that the plane 70 of Buuck discloses a ground plate, Applicant submits that Buuck fails to explicitly teach or suggest that an aperture size of the window 90, which is formed in the plane 70, is smaller than a width of the alleged signal lines (i.e. trace 50, 60). Rather, the reference merely discloses that the windows 90 can be "relatively small", but does not correlate "relatively small" to the width of the trace 50, 60 (col. 3, lines 65-67).

Accordingly, Applicant submits that Kuroda and Buuck fail to cure the deficient teachings of Phelan. Thus, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection

VI. Newly Added Claims

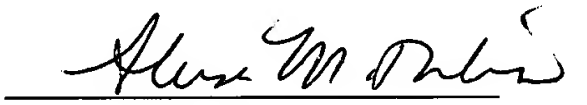
Applicant has added claims 13-15 to provide more varied protection of the present invention. Applicant submits that such claims are patentable at least due to their dependency upon claims 5, 9, and 10, respectively.

VII. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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